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CHARACTERIZING BINGE EATING DISORDER AND EXAMINING EARLY AND ADULT ONSET SUBGROUPS

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Statement of Purpose: To further characterize the psychiatric illness called Binge Eating Disorder and to examine the potential significance that age of onset may have in delineating separate subgroups.
Method: BED patients entering a clinical treatment trial filled out numerous questionnaires and were interviewed by Ph.D. level researchers at the YPI, New Haven, CT.
Subjects: Participants were 86 consecutive outpatients (64 women and 22 men) with BED deemed eligible for a clinical trial.
Measures: Interview data, self-report measures and measured body weight were examined.
Results: Participants were divided into two subgroups based on the age at which their binge-eating began. Subjects who were diagnosed with BED at or before the age of 17 years (mean age of 11 years) were designated Early Onset Binge Eating Disordered (EOBED) and those who illness began at the age of 18 or older (mean age of 31 years) were designated Adult Onset Binge Eating Disordered (AOBED). The study groups each contained 43 subjects (50%) and did not differ in age, current body mass index, race or education. The two groups did however differ significantly in sex distribution, marital status and whether the illness began with a binging or rigorous dieting. The EOBED group contained markedly fewer men, fewer married participants and more binge-first subjects than the AOBED group. Both groups chose similar goal weights, and seemed to differ only marginally in their expectations of how weight loss and treatment would change their lives and in their cognition of the importance of learning and biology in the etiology and maintenance of their eating problems.
Conclusions: Although the measurements we used did not distinguish the EOBED group and the AOBED group in terms of patients' perception of their illness and its impact on their lives, it does not necessarily follow that the age of onset of binge eating did not in fact affect these parameters and others unmeasured. Because the questionnaires were not designed to examine age of onset specifically, many questions were left unasked, such as family history of obesity and BED as well as an exploration of developmental milestones. A more thorough study addressing age of onset and its link to BED need to be performed before any conclusions can be drawn.

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Introduction

The most recent Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition [1] includes the entity of Binge Eating Disorder (BED) in the Appendix B--"Criteria Sets and Axes Provided for Further Study." BED is defined by recurrent episodes of binge eating without the presence of extreme compensatory weight control practices. More specifically, binge eating is defined as overeating coupled with a subjective sense of loss of control. A number of behavioral indicators for binge eating include: eating in a discrete time period (designated at 2 hours), eating a larger quantity of food than is appropriate for the circumstance, and the accompaniment of a sense of guilt, worthlessness, loss of control and despair. The diagnosis of BED also requires that a person binge at least two times a week for six consecutive months.

Research on BED is needed for several reasons. First, BED is thought to be a prevalent problem. Studies have estimated BED to occur in 2-4% of the population and up to 40% of obese persons[2],[3]. Secondly, BED is associated with increased risk for obesity and thus, for serious health-related illnesses. Most patients with BED are obese. Obese patients with BED have been found to be at greater medical risk, suffer more morbidity and mortality, than similarly obese, non-BED people[4]. In addition, patients with BED tend to suffer more co-morbid psychiatric disorders than their obese counterparts[5] .

BED versus BN

BED has received somewhat more attention over the past few years, largely because of its strong association with obesity. While not all obese individuals have BED, almost all individuals with BED are obese. Additionally, it has proven unable to be lumped together with Bulimia Nervosa, a disorder to which it has been likened and with which it does share various features. Both BED and Bulimia Nervosa (BN) are characterized by discrete episodes of binge eating large quantities of food, well beyond the point of subjective fullness, for purely emotional purposes. Both Bulimics and Binge Eaters have poor self-esteem and terrible body image. Both use food as a means of allaying inner psychic conflict.

However, despite similarities, BED is distinctly different from bulimia, as is the patient profile. BN strikes a generally younger age group with onset occurring in high-school or college. Most bulimics are of normal weight. Bulimic patients binge and then compensate for the binge through a number of inappropriate methods such as purging, laxative abuse, diuretic abuse, excessive exercise, and severe dietary restriction. Thus, in delineating BED, we cannot merely transfer our understanding of the BN population. We need to explore certain questions, predominantly, how does the age of onset of BED effect the development and expression of the illness if at all.

As important as it is to differentiate BED from BN and obesity, it is important to examine differences within the BED population itself. Some preliminary studies have shown widely different age onsets of disease in BED patients-- early in life and later on in life (unlike BN). We ask the question: Does early versus late onset on BED

matter? Common sense would tell us that it does. If this is the case, what meaningful differences exist between these groups and what are the consequences of these differences? Do two distinct groups of BED patients exist: early-onset binge eating disordered (EOBED) and adult onset binge eating disordered (AOBED) and how does their psychological profile vary.

Age of Onset

I have chosen to examine age of onset for two reasons. First, intuition dictates that a person's age and stage of development would influence any illnesses developed during that period. Secondly, the addiction literature has shown us that age of onset plays an important role in distinguishing sub-populations of patients, especially with regards to prognosis. One would expect this to carry over to BED, which could be conceptualized as an addiction to food. The effect of age of onset on certain parameters therefore, seem worthy of exploration. Based on psychiatric models of treatment for anxiety disorder, panic disorder and depression, the setting of goals seems to play an important role in treatment success [6], [7].

The age of onset of BED disorder is highly relevant to the fact that the construct of body image may be formed in those intermediary years between childhood and adulthood. How a child views his morphology may stay with him into adulthood, even when his actual body shape has changed. How we think about how our bodies look often has little to do with how they actually look, and more to do with what our internal and external lives were like during that critical phase of development. A late-onset binge eater

may have a very different psychological profile than an early-onset binge eater. So a first and very important question, is "How do people determine what they should and shouldn't look like?" Or, more clinically: "How do people establish weight goals?" We want to know "Is there a difference in weight goals between different subsets of binge eaters?" This is a key question because those weight goals remain entrenched despite new environments and stimuli and they are often extremely unrealistic and counterproductive. If differences can be established in the character of the early-onset binge eater as opposed to the late-onset binge eater, perhaps these difference can guide our understanding of self image, how it is born, how it is maintained, and its relationship to food. We also want to know, Does the age of BED onset affect expectations of the potential effects of weight loss, and if so, which factors in particular are deemed most valuable by each group? Finally we ask "How does the cognition of the binge eater correlate with the age of onset of binge-eating if at all?"

Adami et al. examined the psychological profile of obese persons in evaluating the influence of body weight on body image. An important finding was that significant differences in body image existed between adult-onset obese individuals and early-onset obese individuals even when all subjects had normalized their weight. While this study does not address BED per se, it does address age of onset of obesity, which is generally found to follow BED by several years. This study establishes the point that body image does not parallel body weight in a linear fashion nor does it parallel weight loss. In fact, Adami et al found that body image was significantly correlated with the age of onset of obesity: Adult-onset obese patients (currently of normal weight) had much more

realistic conceptions of their own body image than did early-onset obese patients (also currently of normal weight).

Marcus et al (1995)[8] found that different patterns of onset were associated with a different course for BED, again suggesting a possible difference in psychopathology. She reported that early-onset binge eaters were found to be more likely to report binge-free periods of 3 months or more and to report significantly more of these binge free periods than the late-onset bingers. Additionally, a greater proportion of early-onset binge eaters reported six or more diets that resulted in weight losses of 10 pounds or more. Despite the fact that early and later-onset binge eaters were equally overweight, and reported similar number of binge episodes, the early-onset binge eaters reported more shape and weight concern, and were more likely to report a history of Bulimia Nervosa, with nearly 24% meeting criteria for diagnosis as some point in their lifetime versus the 6.9% of late-onset binge eaters reporting BN [8].

Weight Goals and Life Expectations

The setting of weight goals has particular significance because a) binge eating generally leads to obesity and b) cognitive behavioral therapy and psychopharmacology have been shown to produce some important decreases in binge eating behavior and shown to increase a patient's sense of well-being. However, despite this improvement, no studies to date have shown weight loss accompanying the behavioral changes. The complications of this lie not only in the health risks of obesity but also in the potential frustration that this may lead to. Setting goal weights beyond an achievable point may

emotionally produce problems which then are compensated for in ways that circle back to mitigate the effects of successful BED treatment, causing this "no-weight loss" scenario[9] .

We know from the obesity literature that people have strong and often unrealistic weight loss goals. We also know that they have unrealistic expectations about what weight loss would change about their lives. Foster et al [10] assessed 60 obese women's goals, expectations and evaluations of various outcomes before, during, and after 48 weeks of weight loss treatment (none of whom were diagnosed with concomitant BED). The study demonstrated a dramatic disparity between patients' expectations and professional recommendations, demonstrating the need to help patients accept more modest weight loss outcomes. This data is extremely important because of the correlation between patients' expectations and the degree to which they are met with self-efficacy and relapse. Foster's findings indicate that if expectations are lowered, satisfaction may be improved resulting in longer term recovery. Hence, this may be an area for cognitive intervention. The most effective treatments may be the ones which help patients accept more modest weight loss outcomes and decrease the centrality of weight in individual's self-concept rather than those attempting to increase weight loss. This same issue has yet to be examined in obese persons with BED. In fact, most treatment for BED focuses on decreasing the binge eating behavior, not on weight loss. Hence this approach may be targeting only a part of the problem.

The above is especially important in light of a 1995 recommendation from The Institute of Medicine of the National Academy of Sciences that a reduction in body weight of 5% maintained over at least one year can improve health and lower the risks of

cardiovascular disease significantly in obese patients[10]. Meanwhile most BED patients seek to lose between 30% and 70% of their body weight [3]. Similarly, unrealistic expectations of the impact of such weight loss on many areas of their lives including work aptitude, attractiveness to the opposite sex, and likeability may foretell treatment failure. BED patients may have dieted only to gain the weight back "weight cycling"[11], [12] so many times, that they have in essence given up, which prevents them from trying alternate methods, discourages any sense of accomplishment, and may in fact circle back and sabotage further success, causing the weight gain phenomenon in cured BED patients. Perhaps these patients stop binging by their own report, but consume the same number or more calories per day eaten continuously, also called "grazing", instead of all at one sitting. Perhaps patients with BED have down-regulated their metabolism so much that even eating a reasonable 1800 kcal/day would not cause the tremendous weight loss one would expect.

Thombs et al.[13], though studying a population of bulimic patients, made some interesting connections between strong expectations of weight loss benefits and expectations of self-worth and self-confidence. Thombs found strong weight loss expectations to be associated with more severe bulimic symptoms. Thombs found the strongest relationship between expectancy measures of self-worth, social confidence, positive performance, and social approval with the symptoms of bulimia. Those who held stronger expectations of the benefits of weight loss had more severe symptomotology[13].

Sequence of Dieting and Binging

Sequence of dieting versus binging has also associated with age of onset. In BN,

the role that dieting plays in instigating the binge-purge cycle is very clear[14]. The role of dieting is much hazier in the BED population. While for most bulimic patients, dieting almost inevitably precedes binging, for BED patients this occurs in less than ½ the population[15]. Though studies have shown that for bulimics, dieting is most often the initial or precipitating event in their disease, this has not been demonstrated in the BED population. If fact, some studies show only about 50% of BED patients report dieting behavior before binging behavior; the other 50% reporting binging as the initial manifestation of the disorder[16]. Again, this provokes us question not only the differences betweem BED and BN patients, but differences that exist within the BED population itself.

Mussel evaluated retrospective reports from 30 women participating in a BED treatment study. For the majority of patients, binge eating behavior began during adolescence when the subjects were reported to be of normal weight. Mussel found that in contrast to expectation and unlike BN, onset of binge eating usually predated that both of dieting and of major depressive disorder in the majority of subjects[3]. The importance of this finding is that unlike BN, and unlike eating problems in the general public, childhood/adolescent-onset BED may not be initiated by dieting. This fact in itself sets BED apart from all other eating disorders and eating afflictions and signals a need for unique characterization and intervention.

The purpose of Mussell's study was to examine the relationship among onset of binge eating, dieting, obesity, BED, and affective disorder in a sample selected from a treatment study for BED[3]. Results of retrospective self-report analyses suggested that

although the initiation of binge eating behavior may have occurred in adolescence, a recurrent pattern of binge eating associated with significant distress does not develop until most subject reach adulthood. Most subjects reported meeting criteria for BED several years after the initial binge episode. The results of this study are consistent with those of other studies[17] which indicate that the onset of binge eating precedes significant dieting in a sizeable portion of cases. Most of Mussell's subjects denied significant problems with weight upon initiating the first binge eating episode. Mussell concluded, therefore, that adolescent binge eating appears to develop in the absence of significant dieting or weight problems[3].

Spurrell found that the age of onset of the first binge and BED was markedly different depending on whether an individual began dieting or binging first. Their findings suggest that there may be important etiological differences between individuals who binge first and those who diet first as far as age of onset and co-morbidity with other psychiatric problems. Some of the most pertinent work concerning the dicotomization of binge-eaters has been done by Marcus[8]. Marcus examined the characteristics of 112 women who sought treatment for BED. She examined binge eaters exclusively, not merely obese patients, and separated them into early-onset and adult-onset. She forged ahead in compiling psychological profiles for the two groups, using such variables as weight, binge and diet history, eating-disorder psychopathology, and lifetime history of psychiatric disorder[8]. Marcus reported that to her surprise, the patients did not differ on demographic characteristics and on reported levels of binge eating severity. She did, however find differences in the temporal development of binge eating, dieting, and weight problems.

Marcus found that for the early-onset binge eating group, weight and binge eating problems both preceded dieting. Marcus found that nearly 90% of individuals who reported that the onset of binging preceded their first diet had an early onset of binge eating. In contrast, she found that for the late onset group, weight and dieting preceded binging by nearly a decade[8].

A recent paper by Grilo and Mashen[16] specifically examined the potential significance of the sequence of the onset of dieting and binge eating in binge eating disorder. Sixty-four of the 98 participants (65%) reported that dieting preceded binge eating compared to 34 (35%) reporting that binge eating preceded dieting. Furthermore, age of onset of binge eating and of BED differed significantly depending on whether the dieting or the binge eating began first[16]. Patients who began binge eating first reported earlier onset of overweight, higher frequency of being teased about their weight and shape, and an earlier onset of BED diagnosis than those patients who reported dieting prior to their first binge. Grilo and colleagues in an earlier study had reported that the frequency of being teased about weight and size while growing up was positively correlated with body dissatisfaction during adulthood in obese female patients. In addition, they found that early-onset obesity was associated with greater body dissatisfaction[7].

Other questions that need answering are not only what motivates the binge eater to binge, since simply eradicating the binging does not produce weight loss, but what attitudes about their illness do these patients hold-- do they believe their problem stems from biology or learning and what aspects of their life are most concerning to them and motivate them to change. For a bulimic or anorectic patient, these answers may be

appearance, the pursuit of perfection, parental over-involvement, while for the BED patient, other factors may predominate, such as holding unrealistic goals of weight loss. Perhaps there are predictors which precede BED long enough to be recognizable and allow for intervention. Perhaps since most BED patients are adults and have been afflicted nearly their whole lives, this population needs a treatment protocol of years not months. Can we as treaters really expect to undo in six months behaviors which have been ingrained for decades and which serve highly valuable purposes, though maybe unconscious. Perhaps the BED patient may find other unhealthy ways to satisfy these needs once binging is removed as an option or "self-medication" for underlying neuroses, leading to the paradoxical weight gain.

BED patients are a special population, most of whom have concomitant obesity posing numerous medical threats. In order to establish an effective and viable treatment for these patients, they must first be characterized as thoroughly as medical and psychology researchers have done with anorectic and bulimic patients. Only then can an effective treatment protocol be instituted.

Purpose and Aims

The purpose of this study is several-fold. First and foremost, I wish to examine the relationship between the age of onset of binge eating behavior with other information characterizing the binge eating population. I hypothesize that BED patients are not a homogenous group of individuals, but rather have distinct differences which relate temporally to the onset of their illness. I propose that those people who began binge eating at an early age (age 17 years and below) will have different weight loss goals, different expectations of how their lives will be changed by weight loss and different ideas about the etiology and maintenance of the binge eating disorder than those who began binge eating at a later age (age 18 years and above). This hypothesis is based on the notion that binge eating beginning in childhood will impact the development of a person's sense of self identity in ways that the disorder might not affect adult individuals.

I believe that the ways in which age of onset might impact disease characteristics are as follows: First, with regards to the setting of weight goals, I hypothesize that those individuals who began binge eating in childhood, and hence were more likely to be overweight at a younger age, would set higher goal weights (smaller weight loss goals). While individuals who began binge eating in adulthood and became obese in adulthood were at one time in their lives at a "normal" or acceptable weight and might thus wish to return to this weight, however unrealistic, childhood binge eaters have never been a normal weight for any significant length of time. Thus these early onset binge eaters might

be willing to accept lower and more realistic weight loss goals, which might make them more likely to succeed in achieving their goal weights.

Secondly, with regards to identifying and expecting important areas of their lives to change when they achieve their goal weights, I hypothesize that the later onset binge eaters will have a more realistic notion of how weight loss will affect the everyday aspects of their lives than childhood binge eaters, who have never before experienced "living" at a normal weight nor living with normal eating habits. It would make common senses that individuals who began binge eating after already having successful work and relationship experiences, would understand that their weight plays less of a role and has less of an impact on those areas than binge eaters who have never had successful work or relationship experiences and hence, might be more apt to correlate their social difficulties to their weight issues.

Thirdly, regarding the understanding of binge eating behavior, how and why it began, and how and why it is maintained, I hypothesize that differences might exist between the childhood onset and the adult onset binge eaters. I would suspect that child binge eaters are more likely the product of obese parents than adult onset binge eaters, thus leading the early onset group to connect their eating disturbance to biological or familial causes rather than other external or societal influences. I would expect adult onset binge eaters to emphasize the role of popular culture in their eating disorder and obesity due to the fact that they lived a significant period of time without these problems.

The last purpose of this study is merely to characterize the "binge eater" in as

many ways as possible-- by age, race, gender, marital status, educational status, other psychopathology, and belief systems. The aim of this study is to further corroborate the initial findings of earlier studies, as well as to focus on BED subjects and more specifically, to characterize what seem to be two subsets of binge-eaters. We will examine people's goals for weight loss, both ideal, and disappointing, expectations of what such weight loss will bring them, and how patients construct the idea of their own illness in terms of etiology and maintenance.

Based on a review of literature and in efforts to advance what we know and don't know about the prototypical "binge eater" (if in fact there is just one), we will examine a number of questionnaires filled out by binge-eaters seeking to enroll in a randomized controlled trial of treatment for BED occurring at the Yale Psychiatric Institute, New Haven, CT. To more accurately define Binge Eating Disorder, I propose that we break the illness down into two subgroups related temporally. "Early-onset binge eating" we will define as BED having started before the age of 18. "Late-onset binge eating" we will define at binging after the age of 18. These groups will be adhered to regardless of age of onset of obesity. These "age of onset" binge eating groups will be divided to study if there are enough differences between them to make them entities unto themselves. I feel it is important to divide binge-eaters into these 2 subgroups based on clinical reports of differences and based on our knowledge of adolescent development.

Methods

Participants

Participants were 86 adults evaluated for outpatient clinical trials at the Yale Psychiatric Institute who met DSM-IV criteria for BED. Subjects were men (n=22, 25.6%) and women (n=64, 74.4%) with a mean age of 42.55 years (s.d.=8.61). The majority, 90.7% (n=78) were Caucasian, 5.8% (n=5) were African American, 2.3% (n=2) were Hispanic, and 1.2% (n=1) listed their ethnicity as Other. Most were well-educated, with 10.5%(n=9) having completed high school or gotten a GED education, 44.2% (n=38) having at least some college education, and 45.3% (n=39) having a college or graduate education. A total of 22.1% (n=19) were single, 60.5% (n=52) were married, 16.3% (n=14) were divorced, and 1.2% (1) was widowed. In addition, subjects had an average BMI= 35.81 (s.d.=8.25) and 60.5% (n=52) had experienced clinical depression (as measured by the BDI).

Participants were divided up into two groups based on when they reported having clinically significant BED. Subjects whose illness started before or at the age of 17 years were classified for the purposes of this study as *Early Onset Binge Eating Disordered* (EOBED). Subjects whose illness started at or after the age of 18 were classified as *Adult Onset Binge Eating Disordered* (AOBED).

Measures

DSM-IV. Axis I psychiatric diagnoses were derived by consensus and based on the independent administration of the *Structured Clinical Interview for DSM IV Axis I Disorders* (SCID-I)[18] and a clinical interview by trained and monitored Ph.D-level research clinicians.

Goal Weights. Participants completed a *Goals and Expectations Questionnaire* (see appendix) in which they were asked to think about four different weight loss outcomes and provide information about each one of them. Subjects were asked to select a *Dream Weight* (what they would want to weigh if they could weigh anything they wanted), a *Happy Weight* (a weight they would be happy to achieve if they could not achieve their Ideal Weight), an *Acceptable Weight* (a weight that they would not be particularly happy with but one that they could accept since it would be less than their current weight), and a *Disappointing Weight* (a weight that is less than their current weight but one that would not be viewed as successful in any way) .

Expectations of Weight Loss and Anticipated Effects. The *Expectations of Weight Loss (EWL) Questionnaire* (see appendix) consisted of 2 parts. The first asked participants to cite the "single most important thing in your life that you expect to change as a result of weight loss?" The most common (and nearly sole) answers included improving health, self-esteem, appearance, and gaining control over their lives. The second part of the EWL asked subjects "What effect will weight loss have on the following factors in your life?" Patients were asked to rate the following on a scale of 1 to 10 with 1=extremely negative, 5=neither negative nor positive, and 10= extremely positive: health, social life, sex life, work performance, attractiveness to spouse or

significant other, physical presence, others' perception of competence, comfort in social situations with strangers, assertiveness, like-ability, ability to physically defend oneself, physical strength, comfort at family gatherings, fitness, stress, anxiety, depression, self-confidence, attention from others, and sexual attention/interest from others not including spouse/significant other.

Etiology and Maintenance of Weight. To determine how people with BED think about the etiology and maintenance of both their binge eating behaviors and their weight, the *Etiology and Maintenance Questionnaire* (EMQ) (see appendix) was administered. The EMQ consists of 8 items asking subjects to rate how much they consider both biology and learning in causing and sustaining their illness and weight. The scale ranged from 0(not at all) to 8(completely), with 4=moderately.

Depression. Depression was measured using the Beck Depression Inventory (BDI) scale, which is a 21-item questionnaire used widely to inventory the cognitive, affective, motivational and somatic symptoms of depression. Higher scores reflect higher levels of depression; a score of 16 or higher is recommended as a cut-off point for major depression.

Self-Esteem. Self-Esteem was measured with the Rosenberg Self-Esteem Scale (RSE), a 10-item measure of global self-esteem with established validity and reliability. Subjects rate the items on a scale from 1 (strongly agree) to 4 (strongly disagree). Scoring procedures result in higher scores, reflecting higher self esteem.

Procedures

Participants completed numerous questionnaires before they began the clinical trial. They were given standard measures of depression (BDI) and self-esteem (RSE) as well as questionnaires not unlike the GRWQ (Goals and Relative Weights Questionnaire) used by Foster, such as the EDE-Q (Eating Disorder Examination Questionnaire) and the QEWP-R (Questionnaire for Eating and Weight Practices-Revised). DSM IV axis I and axis II psychiatric diagnosis were derived from administration of SCID-I and DIPD-IV (Diagnostic Interview for DSM-IV Personality Disorders), respectively.

Statistical Analysis

Paired t-tests were used to compare differences between 2 variables. The two study groups (EOBED and AOBED) were compared on numerous individual characteristics. Pearson Chi-Squared analysis were used to test for differences in categorical variables, and ANOVA was used to test for differences with multi-variables. A difference was considered statistically significant if $P<0.05$.

Results

Demographics and Behavior

The EOBED and AOBED groups did not differ significantly on most demographic information (Table 1). EOBED subjects numbered 43 (50%)and had a mean age of 41.23 years (s.d.=9.23). AOBED subjects numbered 43(50%), and had a mean age of 43.88 years (s.d.=7.82)(F=2.06; p=0.15). While the majority of the total was Caucasian, this race was split relatively equally between the two groups with EOBED n=38 (88.4%) of group and AOBED n= 40 (93.0%) of group. Similarly, African Americans and Hispanics, while in the minority, were divided equally between the two groups, with 3 African Americans (7%) and 1 Hispanic (2.3%) in the EOBED group and 2 African Americans (4.7%) and 1 Hispanic (2.3) in the AOBED group. (Pearson Chi-Squared=1.12; p=0.74) On the whole, the population was well educated, and education level was not statistically significant between the two groups, with 17 (39.5%) of EOBED subjects and 21 (48.8%) of AOBED subjects completing at least some college (Pearson Chi-Squared=1.17; p=0.55). BMI at the time of interview was not statistically significant between the groups, with EOBED having a mean BMI of 36.7 (s.d.=9.31) and AOBED having a mean BMI of 34.8 (s.d.=7.03) (F= 1.10; p= 0.29).

The demographics of the two groups differed in only two areas: sex and marital status. In the EOBED group, males numbered 6 (14%) compared to 16 (37.2%) of the AOBED group, while females numbered 37 (86%) in the EOBED group and 27 (62.8%) in the AOBED group (F=6.10; p=0.01). Similar to age, marital status between the two study groups did prove statistically significant. Of EOBED subjects, 15 (34.9%) were single, 21 (48.8%) were married and

7 (16.3%) were divorced. Of AOBED subjects, only 4 (9.3%) were single, 31 (72.1%) were married, 7 (16.3%) were divorced and 1 (1.2%) was widowed (Pearson Chi-Squared=9.29, p= 0.02) The findings of statistically significant differences between the two groups in sex and marital status will be discussed later.

Other characteristics of the two groups (Table 2), including concomitant clinical depression as measured by the BDI scale and self-esteem ratings, as measured by the RSE scale were not statistically significant between the EOBED and AOBED groups (F=1.39, p= 0.24 and F= 1.47; p=0.22) respectively. Furthermore, the number of subjects reporting having been depressed did not differ between groups(28% of the EOBED group and 24% of the AOBED group (Pearson Chi-Squared=0.77; p=0.50)).

A characteristic that did differ between groups and one that is contrary to other studies, is the number of EOBED and AOBED whose illness began with a binge versus a diet. While combined, the groups follow the traditional thinking that diet precedes binge, when separated, the groups did not follow this pattern at all: 62.8% of EOBED (n=27) versus 21.4% of the AOBED (n=9) reported binging behaviors before starting dieting behaviors. In contrast, 37.2% of EOBED (n=16) versus 78.6% of AOBED (n=33) group reported their illness started with dieting. Overall, 42% (n=36) of all binge eaters began by binging versus 57.6% (n=49) of all binge eaters who began with rigorous dieting. This information is not only statistically significant (Pearson Chi-Squared= 14.88; p=0.00) but is an important difference characterizing the two groups.

To confirm that there is in fact a statistical significance between the EOBED and AOBED groups, we analyzed 3 factors that we felt should differ between groups: Age of Binging Onset, Age of Dieting Onset and Age First Overweight by At Least 10 Pounds (Table 3). The EOBED

group had a mean age of binging onset at 11.53 years (s.d= 3.56) versus the AOBED group which had a mean age of binging onset at 30.23 years (s.d.=8.88) (F=164.32; p=0.00). Age of dieting onset was 13.66 years (s.d.= 4.17) for the EOBED group and 21.49 years (s.d.= 7.81) for the AOBED group (F=30.18; p=0.00). Lastly, the EOBED group reported a mean age of 10.2 years (s.d=3.88) when they first became overweight by at least ten pounds compared to the AOBED group who reported a mean age of 19.73 years (s.d.=9.08) for this same parameter (F=39.39; p= 0.00)

Goal Weights

The results of our analysis are summarized in Tables 4-6. These display the results of our Goal Weight questionnaire. We were interested in seeing if peoples hopes for weight loss differed depending on the time that their BED started. For all 4 parameters, there was no significant difference between EOBED and AOBED groups. Recalling that the mean BMI for both men and women in the EOBED group was 36.7 (s.d.=9.31) and in the AOBED group was 34.8 (s.d.=7.03), the EOBED group reported a Dream Weight (translated into BMI to account for height differences) of 22.62 (s.d.=2.79) and the AOBED group reported a mean Dream Weight of 23.20 (s.d.= 2.71) (F=0.95; p=0.33). Happy Weight was reported by the EOBED group as 25.22 (s.d.=3.62) compared to 25.23 (s.d.=2.99) by the AOBED group (F=0.00; p= 0.98). Acceptable weights for EOBED averaged 27.91(s.d.= 4.67) and 27.07 (s.d.=3.49) for AOBED (F= 0.88; p =0.34). Disappointing Weight averaged 31.61 (s.d.=7.13) for EOBED group and 30.17 (s.d.=5.02) for AOBED group (F=1.157; p=0.2). When the groups were broken down by sex, no differences were found amongst the male EOBED group and the male AOBED group or amongst

the female EOBED group and the female AOBED group.

Expectations for Change

Tables 7-9 display the results of the *Expectations of Weight Loss Questionnaire*. For men and women combined, two factors varied between groups in a statistically significant way: *Comfort in Social Situations with Strangers*, and *Depression*. The EOBED group rated the former an 8.33 (s.d.=1.90) while the AOBED rated this factor a 7.47 (s.d.=2.13) (F=3.90; p=0.05). For the variable *Depression*, the EOBED group gave a mean rating of 8.12 (s.d.=1.87) while the AOBED group gave it a rating of 6.98 (s.d.=2.37) (F=6.14; p=0.01). When the total BED group was broken up by gender, men showed no statistically significant (p=0.05) differences related to age of BED onset, however there were several trends (p=0.10) For *Stress*, *Anxiety*, and *Depression*, the EOBED group gave higher ratings than the AOBED group (F=3.27, p=0.08; F=3.69, p=0.06; F=3.18, p=0.08 respectively). Unlike men, women alone did show some statistically significant differences in rating expectations of weight loss for the variables of *Physical Presence* (F=5.26, p=0.02), *Others' Perception of Competence* (F=5.02, p=0.02), and *Comfort in Social Situations* (F=4.62, p=0.03) with the EOBED group giving higher ratings than the AOBED group. Furthermore, trends were seen for the variables *Attractiveness to Spouse* (F=2.88, p=0.09) and *Attention from Others* (F=2.65, p=0.10), again with the EOBED group giving higher ratings for both than the AOBED group. In sum, the EOBED group expressed a greater emphasis on depression in their lives than did the AOBED group.

Tables 10-12 display the "most important reason for weight loss." Men and women combined ranked *Self-Esteem* first, *Health* second, *Appearance* third and *Control* fourth. There

were no statistically significant differences between the EOBED group and the AOBED group. Interestingly, when taken alone, men did not cite *Control* as an important factor for weight loss, and their rankings were *Health* first, *Self-Esteem* second, and *Appearance* third. Females, on the other hand, ranked *Self-Esteem* first, *Health* second, *Control* third, and *Appearance* fourth. Within each sex their were no differences between BED groups. This brings up the question of the pertinence of control and how the centrality of control differs in women and mens' lives.

Etiology and Maintenance

Tables 13-15 display the results of the *Etiology and Maintenance Questionnaire*. For males and females combined, statistical significance was found in the importance subjects place on the role of learning in causing their weight ($F=4.33$, $p=0.04$), with EOBED subjects giving lower ratings than AOBED subjects. Interestingly, males alone showed no differences by BED onset in their cognition of the role of learning and biology in causing and maintaining their binge eating disorder and their weight. Females alone, however showed statistically significant differences in Role of Learning in Causing Weight ($F=4.73$; $p=0.03$) and in Role of Learning in Maintaining Weight ($F=4.25$, $p=0.04$) again with EOBED subjects giving lower ratings than AOBED subjects in both categories.

Discussion

Primary Findings

In terms of the relationship between "age of onset" of BED and the specific parameters of Goal Weights, Expectations for Weight Loss, and Etiology and Maintenance, we found no great differences between our AOBED group and our EOBED group. However, this does not mean there are no differences between groups. Our present study was limited to 64 people, most with higher education and access to a university-based trial. In terms of characterizing BED and finding other differences between the EOBED and AOBED group, however, we made some inroads.

(1) Surprisingly, the *goal weights* of EOBED subjects and AOBED subjects did not differ significantly, even when broken down by sex. All four weight parameters, *Ideal Weight*, *Happy Weight*, *Acceptable Weight*, *Disappointing Weight*, were similar, as were present BMIs. Not only were these goal weights far from the patients' current weights, but their goal weights were also extremely far from the IMNAS's suggested 5% weight loss for improved health. Considering that most people in both groups placed *health* as a reason for weight loss high on their list, either they are being untruthful in the importance of their desire to be healthier or they are unaware of the difference that a small weight loss can make on morbidity and mortality. This suggests that (a) a large part of pre-treatment should be devoted to health awareness and education and (b) while health is no doubt important to both groups, one cannot underestimate the power of aesthetics in shaping subjects goal weights.

(2) Age of onset of BED did seem to affect certain of the patients' *expectations of the impact of weight loss* on their sense of self and on the quality of their lives. Most strongly

correlated with age of onset of BED was patients expectation that their *depression* would improve with weight loss, with EOBED subjects expecting depression to improve with weight loss more markedly than AOBED subjects. The EOBED group rated this expectation a mean of 8.12 (s.d.=1.87) compared to the AOBED group who rated this expectation a mean of 6.98 (s.d.=2.37)(F=6.14, p=0.01) This result might have to do with a difference in experience and cognition. EOBED subjects may have been depressed for as long as they have been binge eaters, which could be as long as they can remember or at least starting in early childhood. They therefore have never been "not depressed" and may unrealistically see depression as a consequence of their BED and obesity. Conversely, AOBED subjects may have a more realistic understanding that weight loss may not impact their mood so extremely. Perhaps they have been depressed before they ever had an eating problem and even see their BED as a consequence of depression.

A second statistically significant difference between BED groups concerns how subjects perceive weight loss will impact their *comfort in social situations with strangers*. EOBED subjects rated *comfort* a mean of 8.33 (s.d.=1.90) compared to AOBED subjects who rated it a 7.47 (s.d.=2.13)(F=3.90; p=0.05). This phenomenon is not unexpected given that the AO group had more time before binge-eating and obesity to develop social skills.

When one examines male and female BED patients separately, one finds a trend among the EOBED men to believe that weight loss will impact their *stress*, *anxiety* and *depression*, more than the AOBED men. Examining women alone reveals statistically significant differences in females expectations of weight loss to affect *physical presence* (F=5.26; p=0.02), *others' perception of their competence* (F=5.02; p=0.02) and *comfort in social situations with strangers* (F=4.62; p=0.03). Furthermore there was a trend difference in females ratings of *attractiveness to spouse*

(F=2.88; p=0.09) and *attention from others* (F=2.65; p=0.10). For all five variables, the EOBED group gave higher ratings than the AOBED group.

(3) Perceptions of the etiology and maintenance of their BED also varied little between study groups. For men and women combined, a statistically significant difference was found in the importance given to the *role of learning in causing weight problems*. EOBED subjects rated this factor a mean of 4.72 (s.d.=2.31) compared to 5.70 (s.d.=2.03) rating from the AO BED group (F=4.33; p=0.040). When men were separated out, however, they alone did not show and differences between groups. Women on the other hand, when separated out, showed statistically significant differences in rating the importance of both the *role of learning in causing weigh problems* and the *role of learning in maintaining weight*, with the EOBED group scoring both factors lower than the AOBED group (F=4.73, p=0.03; and F=4.25, p=0.04 respectively).

Secondary Findings

(1) While one might expect more women to have eating disorder problems and to participate in a clinical trial, it is not intuitive that the majority of males (n=16 versus n=6, or 27.3% vs 72.7% of all males) belong to the AOBED group. This unequal split within the male population is interesting given the much more equal split amongst female participants (n=37 versus n=27, or 57.8% vs 42.2% of all females), and raising the question of why more of the men don't become afflicted with BED earlier, and how this later onset may be indicative of the cause (i.e. picking up bad habits vs parental involvement and pressure).

(2) Gender was also associated with different *expectations for weight loss* and cognition of the *etiology and maintenance of weight loss*. The men showed no differences between EO and AO

BED groups concerning these two factors, whereas the females did. Gender differences were also see in the emphasis placed on "control" as a primary reason for motivating BED treatment. These underscore the notion that men and women think differently and raises the question of whether men and women should be treated in separate CBT groups.

(3) Marital status differed largely between the AOBED and EOBED groups. This gives credence to the notion that age of onset does affect socialization, whether acknowledged by the individual or not. Perhaps this is just indicative of the fact that AOBED patients reportedly became obese later in life and started binging later in life, leaving them more time "disease-free" and more time unburdened by obesity and low self-esteem to engage in meaningful relationship leading to marriage, or at least more time to develop the necessary social skills and confidence. If this is the case, it interesting that the marriage relationship does not seem to impact the current self-esteem and appearance concerns, since both BED groups had similar RSE and BDI scores as well as similar external presentation concerns.

Future Directions

If we separate BED patients by both age of illness onset and perhaps even by sex, and focus treatment on the specific area which has kept each group from sustaining weight loss, perhaps long term results would be more promising. As of yet, no studies have been performed separating classes of BED patients and tailoring treatment specific to each group. The details of each treatment protocol remain to be defined, but based on the psychological profiles elaborated in this study, including weight loss goals and expectations of how this weight loss will impact life, separate interventions for early-onset and adult-onset BED could certainly be initiated.

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Table 1
Demographic Characteristics of Binge Eaters (n=86)

	EO BED (n=43)		AO BED (n=43)		Analysis	
acteristic	**M/n**	**SD/%**	**M/n**	**SD/%**	**F/X**	**P**
	41.236	9.2346	43.8837	7.820	2.064	0.155
er					6.108	**0.013**
Male	6	14.0	16	37.2		
Female	37	86.0	27	62.8		
Total	43	100.0	43	100.0		
city					1.1251	0.741
Caucasian	38	88.4	40	93.0		
African American	3	7.0	2	4.7		
Hispanic	1	2.3	1	2.3		
Other	1	2.3	0	00.0		
tion Level					1.173	0.556
High School	4	9.3	5	11.6		
Some College	17	39.5	21	48.8		
College +	22	51.2	17	39.5		
al Status					9.29	**0.026**
Single	15	34.9	4	9.3		
Married	21	48.8	31	72.1		
Divorced	7	16.3	7	16.3		
Widowed	0	00.0	1	1.2		

Table 3: Group Descriptives

N=86*

	EO BED		AO BED		ANOVA	
	MEAN	STD DEV	MEAN	STD DEV	F	P
Age of Binging Onset	11.53	3.56	30.23	8.88	164.321	**0.000**
Age of Dieting Onset	13.66	4.17	21.49	7.81	30.180	**0.000**
Age First Over-Weight by at Least 10 Pounds	10.2	3.88	19.73	9.08	39.392	**0.000**
Average BMI at Time of Interview	36.7	9.31	34.8	7.03	1.104	**NS** (0.296)

*Due to missing data, N ranged from 79-86.

Table 4-6: Goal Weights

Table 4: Goal Weights
Males and Females (N=86*)

	EO BED		AO BED		ANOVA	
	MEAN BMI	STD DEV	MEAN BMI	STD DEV	F	P
Dream Weight	22.6246	2.7906	23.2058	2.7180	0.957	0.331
Happy Weight	25.2242	3.6214	25.2346	2.9982	0.000	0.988
Acceptable Weight	27.9111	4.6761	27.0725	3.4924	0.888	0.349
Dissapoint Weight	31.6158	7.1378	30.1730	5.0207	1.157	0.285

*Due to missing data, N ranged from81-86.

Table 5: Goal Weights
Males Only (N=22*)

	EO BED		AO BED		ANOVA	
	MEAN BMI	STD DEV	MEAN BMI	STD DEV	F	P
Dream Weight	25.6363	2.2115	25.5838	2.3719	0.002	0.963
Happy Weight	28.6185	2.2290	27.5586	2.5684	0.792	0.384
Acceptable Weight	30.4564	2.7303	29.4233	3.2172	0.484	0.495
Dissapoint Weight	34.4496	4.5773	32.9070	5.1854	0.409	0.530

*Due to missing data, N ranged from 21-22.

Table 6: Goal Weights

Table 6: Goal Weights
Females Only (N=64*)

	EO BED		AO BED		ANOVA	
	MEAN BMI	STD DEV	MEAN BMI	STD DEV	F	P
Dream Weight	22.1363	2.5786	21.7966	1.7737	0.348	0.558
Happy Weight	24.6737	3.5184	23.8573	2.3285	1.100	0.298
Acceptable Weight	27.4984	4.8188	25.6795	2.8836	3.043	0.086
Dissapoint Weight	31.1300	7.4295	28.5529	4.2286	2.5494	0.113

*Due to missing data, N ranged from 61-64.

Table 7: Expectations of the Potential Effects of Weight Loss

Table 7: Males and Females (N=86*)

	EO BED		AO BED		ANOVA	
	MEAN	STD DEV	MEAN	STD DEV	F	P
Health	9.51	1.16	9.67	0.84	0.555	NS (0.458)
Social Life	7.49	1.97	7.14	2.01	0.662	NS (0.418)
Sex Life	7.95	2.05	7.44	1.79	1.498	NS (0.224)
Work Perfor-mance	7.23	2.08	7.37	1.92	0.093	NS (0.761)
Attractive-ness to spouse	8.35	1.79	7.67	1.88	2.830	NS (0.096)
Physical Presence	9.00	1.54	8.40	1.87	2.560	NS (0.113)
Others' Perception Compe-tance	7.56	1.98	7.00	2.11	1.565	NS (0.215
Comfort in Social Situations with Strangers	**8.33**	1.90	**7.47**	2.13	3.908	**0.051**
Assertive-ness	7.19	2.07	6.84	2.10	0.600	NS (0.441)
Likeability	6.60	1.88	5.90	1.81	3.032	0.085
Ability to Physically Defend Yourself	6.84	2.10	6.51	2.04	0.516	NS (0.474)
Physical Strength	7.44	2.09	7.57	1.80	0.094	NS (0.760)
Comfort at Family Gatherings	7.88	1.90	7.44	2.17	0.999	NS (0.320)

Table 7 Continued

	EOBED		AOBED		ANOVA	
	MEAN	STD DEV	MEAN	STD DEV	F	P
Fitness	9.26	1.27	9.23	1.11	0.008	NS (0.928)
Stress	7.93	1.75	7.79	2.01	0.125	NS (0.724)
Anxiety	7.56	2.13	6.88	2.44	1.859	NS (0.176)
Depression	**8.12**	1.87	**6.98**	2.37	6.149	**0.015**
Self Confidence	8.79	1.95	8.23	1.96	1.754	NS (0.189)
Attention from Others	7.19	1.68	6.51	2.03	2.764	NS (1.00)
Sexual Attention from Others (Not Including Spouse)	7.47	2.10	6.95	2.33	1.140	NS (0.289)

*Due to missing data, N ranged from 84-86.

Note: All ratings are provided on a 1-10 scale with the following anchors:
1="Extremely Negative"/"Unimportant"; 5="Neutral/Somewhat Important"; 10="Extremely Positive/Very Important."

Table 8: Expectations of the Potential Effects of Weight Loss

Table 8: Males Only (N=22*)

	EO BED		AO BED		ANOVA	
	MEAN	STD DEV	MEAN	STD DEV	F	P
Health	10.00	0.00	9.63	0.81	1.259	NS (0.275)
Social Life	8.17	1.83	7.13	1.93	1.305	NS (0.267)
Sex Life	8.00	2.00	7.50	1.90	0.295	NS (0.593)
Work Performance	9.00	1.67	8.38	1.71	0.590	NS (0.451)
Attractiveness to spouse	8.33	2.07	7.88	1.86	0.251	NS (0.622)
Physical Presence	7.83	2.56	8.75	1.24	1.313	NS (0.265)
Others' Perception of Competance	7.83	2.04	8.00	1.97	0.031	NS (0.863)
Comfort in Social Situations with Strangers	8.17	2.48	7.81	1.97	0.123	NS (0.730)
Assertiveness	7.00	2.28	6.81	2.10	0.033	NS (0.875)
Likeability	6.67	2.07	5.94	2.05	0.551	NS (0.467)
Ability to Physically Defend Yourself	5.50	1.76	6.83	1.78	1.056	NS (0.316)
Physical Strength	6.50	2.59	7.19	1.94	0.459	NS (0.506)

Table 8 Continued

	EO BED		AO BED		ANOVA	
	MEAN	STD DEV	MEAN	STD DEV	F	P
Comfort at Family Gatherings	8.17	2.23	7.69	2.30	0.192	NS (0.666)
Fitness	9.50	0.84	9.50	0.82	0.000	NS (1.000)
Stress	9.33	1.03	7.31	2.63	3.2777	0.085
Anxiety	8.50	1.97	6.31	2.50	3.698	0.069
Depression	8.67	1.63	6.56	2.68	3.186	0.089
Self Confidence	9.33	1.03	8.63	1.67	0.930	NS (0.346)
Attention from Others	6.50	1.64	6.50	2.03	0.000	NS (1.000)
Sexual Attention from Others (Not Including Spouse)	7.67	2.25	7.38	2.39	0.067	NS (0.799)

*Due to missing data, N ranged from 21-22.

Note: All ratings are provided on a 1-10 scale with the following anchors:
1="Extremely Negative"/"Unimportant"; 5="Neutral/Somewhat Important"; 10="Extremely Positive/Very Important."

Table 9: Expectations of the Potential Effects of Weight Loss

Table 9: Females Only (N=64*)

	EO BED		AO BED		ANOVA	
	MEAN	STD DEV	MEAN	STD DEV	F	P
Health	9.43	1.24	9.70	0.87	0.953	NS (0.333)
Social Life	7.38	1.99	7.15	2.09	0.200	NS (0.656)
Sex Life	7.95	2.08	7.40	1.76	1.161	NS (0.286)
Work Perfor-mance	6.95	2.01	6.72	1.79	0.205	NS (0.652)
Attractive-ness to spouse	8.35	1.77	7.54	1.92	2.889	0.095
Physical Presence	**9.19**	1.27	**8.19**	2.17	5.268	**0.025**
Others' Perception of Com-petance	**7.51**	1.99	**6.36**	1.98	5.026	**0.029**
Comfort in Social Situations with Strangers	**8.35**	1.83	**7.26**	2.23	4.624	**0.035**
Assertive-ness	7.22	2.07	6.85	2.14	0.469	NS (0.496)
Likeability	6.59	1.88	5.88	1.69	2.337	NS (0.132)
Ability to Physically Defend Yourself	7.05	2.09	6.60	2.22	0.669	NS (0.417)
Physical Strength	7.59	1.99	7.81	1.70	0.197	NS (0.659)

Table 9 Continued

	EO BED		AO BED		ANOVA	
	MEAN	STD DEV	MEAN	STD DEV	F	P
Comfort at Family Gatherings	7.84	1.88	7.28	2.11	1.190	NS (0.280)
Fitness	9.22	1.34	9.07	1.24	0.188	NS (0.666)
Stress	7.70	1.75	8.08	1.49	0.788	NS (0.378)
Anxiety	7.41	2.14	7.23	2.39	0.092	NS (0.762)
Depression	8.03	1.91	7.22	2.17	2.471	NS (0.121)
Self Confidence	8.70	2.05	8.00	2.11	1.785	NS (0.186)
Attention from Others	7.30	1.68	6.52	2.06	2.652	0.109
Sexual Attention from Others (Not Including Spouse)	7.43	2.10	6.69	2.29	1.756	NS (0.190)

*Due to missing data, N ranged from 61-64.

Note: All ratings are provided on a 1-10 scale with the following anchors:
1="Extremely Negative"/"Unimportant"; 5="Neutral/Somewhat Important"; 10="Extremely Positive/Very Important."

Table 10-12: Most Important Reason for Weight Loss

Table 10: Males and Females (N=84)

	EO BED		AO BED		TOTALS	
MALE and FEMALE	N	% EOBED	N	% AOBED	N	% of Total BED
SelfEsteem	21	61.8%	13	38.2%	34	40.5%
Health	11	42.3%	15	57.7%	26	31.0%
Appear	3	37.5%	5	62.5%	8	9.5%
Control	4	57.1%	3	42.9%	7	8.3%
Other	4	44.4%	5	55.6%	9	10.7%

Table 11: Males (N=22)

	EO BED		AO BED		TOTALS	
MALE	N	% EO Males	N	% AO Males	N	% of Total
Health	3	30%	7	70%	10	45.5%
SelfEsteem	2	28.6%	5	71.4%	7	31.8%
Appear	0	0.0%	2	100.0%	2	9.1%
Other	1	33.3%	2	66.7%	3	13.6%

Table 12: Females (N=64)

	EO BED		AO BED		TOTALS	
FEMALE	N	% EO Females	N	% AO Females	N	% of Total
SelfEsteem	19	70.0%	8	29.6%	27	43.5%
Health	8	50.0%	8	50.0%	16	25.8%
Control	4	57.1%	3	42.9%	7	11.3%
Appear	3	50.0%	3	50.0%	6	9.7%
Other	3	50.0%	3	50.0%	6	9.7%

Tables 13-15:Etiology and Maintanance of Binge Eating and Obesity

Table 13: Males and Females (N=86*)

	EO BED		AO BED		ANOVA	
	MEAN	STD DEV	MEAN	STD DEV	F	P
Biological Role in Causing Binge Eating	4.44	2.28	4.29	2.39	0.095	NS (0.759)
Biological Role in Maintain Binge Eating	4.12	2.48	3.84	2.47	0.273	NS (0.603)
Biological Role in Causing Weight	4.93	1.80	4.67	2.32	0.326	NS (0.569)
Biological Role in Maintain Weight	4.42	1.91	4.51	2.31	0.041	NS (0.839)
Role of Learning in Causing Binge Eating	5.52	2.16	5.88	1.93	0.659	NS (0.419)
Role of Learning in Maintain Binge Eating	5.56	1.97	6.07	1.82	1.710	NS (0.195)
Role of Learning in Causing Weight	**4.72**	2.31	**5.70**	2.03	4.332	**0.040**
Role of Learning in Maintain Weight	5.42	2.04	6.07	1.76	2.495	NS (0.118)

*Due to missing data, N ranged from 81-86.

Note: All ratings are provided on a 1-10 scale with the following anchors:
1="Extremely Negative"/"Unimportant"; 5="Neutral/Somewhat Important"; 10="Extremely Positive/Very Important."

Tables 13-15: Etiology and Maintanance of Binge Eating and Obesity

Table 14: Males Only (N=22*)

	EO BED		AO BED		ANOVA	
	MEAN	STD DEV	MEAN	STD DEV	F	P
Biological Role in Causing Binge Eating	6.00	1.26	5.19	2.48	0.573	NS (0.458)
Biological Role in Maintain Binge Eating	5.83	1.33	4.94	2.32	0.780	NS (0.388)
Biological Role in Causing Weight	5.33	1.21	5.38	2.45	0.002	NS (0.969)
Biological Role in Maintain Weight	5.33	1.63	5.31	2.41	0.000	NS (0.985)
Role of Learning in Causing Binge Eating	6.17	1.33	5.93	1.88	0.074	NS (0.788)
Role of Learning in Maintain Binge Eating	6.17	1.33	6.00	1.71	0.046	NS (0.833)
Role of Learning in Causing Weight	6.17	1.33	5.69	2.18	0.250	NS (0.623)
Role of Learning in Maintain Weight	6.50	1.52	5.81	2.10	0.529	NS (0.475)

*Due to missing data, N ranged from 21-22.

Note: All ratings are provided on a 1-10 scale with the following anchors:
1="Extremely Negative"/"Unimportant"; 5="Neutral/Somewhat Important"; 10="Extremely Positive/Very Important."

Table 13-15: Etiology and Maintanance of Binge Eating and Obesity

Table 15: Females Only (N=64*)

	EO BED		AO BED		ANOVA	
	MEAN	STD DEV	MEAN	STD DEV	F	P
Biological Role in Causing Binge Eating	4.19	2.32	3.73	2.20	0.622	NS (0.433)
Biological Role in Maintain Binge Eating	3.84	2.52	3.19	2.35	1.105	NS (0.297)
Biological Role in Causing Weight	4.86	1.89	4.26	2.18	1.411	NS (0.239)
Biological Role in Maintain Weight	4.27	1.92	4.04	2.16	0.207	NS (0.651)
Role of Learning in Causing Binge Eating	5.42	2.26	5.85	1.99	0.632	NS (0.430)
Role of Learning in Maintain Binge Eating	4.46	2.05	6.15	1.92	1.861	NS (0.177)
Role of Learning in Causing Weight	**4.49**	2.36	**5.70**	1.98	4.734	**0.033**
Role of Learning in Maintain Weight	**5.24**	2.07	**6.25**	1.53	4.256	**0.043**

*Due to missing data, N ranged from 61-64.

Note: All ratings are provided on a 1-10 scale with the following anchors:
1="Extremely Negative"/"Unimportant"; 5="Neutral/Somewhat Important"; 10="Extremely Positive/Very Important."

Appendix: YPI Study Questionnaires

me_____ Date_____

Goals and Expectations

r the following questions, we would like you to think about four different weight loss outcomes and vide information about each of them.

The first weight is your dream weight, if you could weigh whatever you wanted.

a. What is this weight?

Dream Weight = lbs

The **second weight** is not as ideal as the first one. It is a weight, however, that you would be **happy** to achieve.

a. What is this weight?

Happy Weight = lbs

The **third weight** is one that you would not be particularly happy with but one that you could **accept** since it would be less than your current weight.

a. What is this weight?

Accept Weight = lbs

The **fourth weight** is one that is *less than your current weight* but one that you could not view as successful in any way. You would be **disappointed** if this was your final weight after the program.

a. What is this weight?

Disappoint Weight = lbs

Name_____ Date_____

EWL

1. What is the single most important thing in your life that you expect to change as a result of weight loss?

_____

_____

2. What effect will weight loss have on the following factors in your life?

1	2	3	4	5	6	7	8	9	10
extremely negative				*neither positive nor negative*					*extremely positive*

a._____ Health

b._____ Social life

c._____ Sex Life

d._____ Work performance (inside or outside the home)

e._____ Attractiveness to spouse or significant other

f._____ Physical presence

g._____ Other's perception of your competence

h._____ Comfort in social situations with strangers

i._____ Assertiveness

j._____ Likability

k._____ Ability to physically defend yourself

l._____ Physical strength

m._____ Comfort at family gatherings

n._____ Fitness

o._____ Stress

p._____ Anxiety

q._____ Depression

r._____ Self-confidence

s._____ Attention from others

t._____ Sexual attention/interest from others (not including spouse/significant other)

ETIOLOGY VS. MAINTENANCE QUESTIONNAIRE

1. Please rate how much you believe biological factors play a role in causing your binge eating.

0 1 2 3 4 5 6 7 8
Not at All Moderately Completely

2. Please rate how much you believe biological factors play a role in maintaining your binge eating.

0 1 2 3 4 5 6 7 8
Not at All Moderately Completely

3. Please rate how much you believe biological factors play a role in causing your weight.

0 1 2 3 4 5 6 7 8
Not at All Moderately Completely

4. Please rate how much you believe biological factors play a role in maintaining your weight.

0 1 2 3 4 5 6 7 8
Not at All Moderately Completely

5. Please rate how much you believe learning (i.e., behaviors, thinking, feeling, and sociocultural factors) plays a role in causing your binge eating.

0 1 2 3 4 5 6 7 8
Not at All Moderately Completely

6. Please rate how much you believe learning (i.e., behaviors, thinking, feeling, and sociocultural factors) plays a role in maintaining your binge eating.

0 1 2 3 4 5 6 7 8
Not at All Moderately Completely

7. Please rate how much you believe learning (i.e., behaviors, thinking, feeling, and sociocultural factors) plays a role in causing your weight.

0 1 2 3 4 5 6 7 8
Not at All Moderately Completely

8. Please rate how much you believe learning (i.e., behaviors, thinking, feeling, and sociocultural factors) plays a role in maintaining your weight.

0 1 2 3 4 5 6 7 8
Not at All Moderately Completely

Appendix A
QUESTIONNAIRE ON EATING AND WEIGHT PATTERNS—REVISED (QEWP-R)[1,2,3]

Last name_____ First name_____ M.I.____

Date_____ I.D. Number _____

Thank you for completing this questionnaire. Please circle the appropriate number or response, or write in information where asked. You may skip any question you do not understand or do not wish to answer.

1. Age ___ ___ years

2. Sex: 1 Male 2 Female

3. What is you ethnic/racial background?

   1 Black (not Hispanic)
   2 Hispanic
   3 White (not Hispanic)
   4 Asian
   5 Other (please specify)
   _____

4. How far did you get in school?

   1 Grammar school, junior high school or less
   2 Some high school
   3 High school graduate or equivalency (GED)
   4 Some college or associate degree
   5 Completed college

5. How tall are you?

   ____ feet ___ ___ in

6. How much do you weigh now?

   _____ lbs

7. What has been your highest weight ever (when not pregnant)?

   _____ lbs

8. Have you ever been overweight by at least 10 lbs as a child or 15 lbs as an adult (when not pregnant)?

   1 Yes 2 No or not sure

   IF YES: How old were you when you were first overweight (at least 10 lbs as a child or 15 lbs as an adult?) If you are not sure, what is your best guess?

   ____ ___ years

9. How many times (approximately) have you lost 20 lbs or more — when you weren't sick — and then gained it back?

   1 Never
   2 Once or twice
   3 Three or four times
   4 Five times or more

10. During the past **six** months, did you often eat within any two-hour period what most people would regard as an unusually large amount of food?

    1 Yes 2 No

    IF NO: SKIP TO QUESTION 15

11. During the times when you ate this way, did you often feel you couldn't stop eating or control what or how much you were eating?

1 Yes 2 No

IF NO: SKIP TO QUESTION 15

12. During the past **six** months, how often, on average, did you have times when you ate this way — that is, large amounts of food **plus** the feeling that your eating was out of control? (There may have been some weeks when it was not present — just average those in).

1 Less than one day a week
2 One day a week
3 Two or three days a week
4 Four or five days a week
5 Nearly every day

13. Did you **usually** have any of the following experiences during these occasions?

a Eating much more rapidly than usual? Yes No

b Eating until you felt uncomfortably full? Yes No

c Eating large amounts of food when you didn't feel physically hungry? Yes No

d Eating alone because you were embarrassed by how much you were eating? Yes No

e Feeling disgusted with yourself, depressed, or feeling very guilty after overeating? Yes No

14. Think about a typical time when you ate this way —that is, large amounts of food **plus** the feeling that your eating was out of control.

a What time of day did the episode start?

1 Morning (8 AM to 12 Noon)
2 Early afternoon (12 Noon to 4 PM)
3 Late afternoon (4 PM to 7 PM)
4 Evening (7 PM-10 PM)
5 Night (After 10 PM)

b Approximately how long did this episode of eating last, from the time you started to eat to when you stopped and didn't eat again for at least two hours

____ hours ____ minutes

c As best you can remember, please list everything you might have eaten or drunk during that episode. If you ate for more than two hours, describe the foods eaten and liquids drunk during the two hours that you ate the most. Be specific—include brand names where possible and amounts as best you can estimate. (For example: 7 ounces Ruffles potato chips; 1 cup Breyer's chocolate ice cream with 2 teaspoons hot fudge; 2 8-ounce glasses of Coca-cola, 1 1/2 ham and cheese sandwiches with mustard).

d At the time this episode started, how long had it been since you had previously finished eating a meal or snack?

____ hours ____ minutes

15. In general, during the past **six** months, how upset were you by overeating (eating more than you think is best for you)?

1 Not at all
2 Slightly
3 Moderately
4 Greatly
5 Extremely

16. In general, during the past **six** months, how upset were you by the feeling that you couldn't stop eating or control what or how much you were eating?

1 Not at all
2 Slightly
3 Moderately
4 Greatly
5 Extremely

17. During the past **six** months, how important has your weight or shape been in how you feel about or evaluate yourself as a person— as compared to other aspects of your life, such as how you do at work, as a parent, or how you get along with other people?

1 Weight and shape were **not very important**
2 Weight and shape **played a part** in how you felt about yourself
3 Weight and shape **were among the main things** that affected how you felt about yourself
4 Weight and shape **were the most important things** that affected how you felt about yourself.

18. During the past **three** months, did you ever make yourself vomit in order to avoid gaining weight after binge eating?

1 Yes 2 No

IF YES: How often, **on average**, was that?

1 Less than once a week
2 Once a week
3 Two or three times a week
4 Four or five times a week
5 More than five times a week

19. During the past **three** months, did you ever take more than twice the recommended dose of laxatives in order to avoid gaining weight after binge eating?

1 Yes 2 No

IF YES: How often, **on average**, was that?

1 Less than once a week
2 Once a week
3 Two or three times a week
4 Four or five times a week
5 More than five times a week

20. During the past **three** months, did you ever take more than twice the recommended dose of diuretics (water pills) in order to avoid gaining weight after binge eating?

1 Yes 2 No

IF YES: How often, **on average**, was that?

1 Less than once a week
2 Once a week
3 Two or three times a week
4 Four or five times a week
5 More than five times a week

21. During the past **three** months, did you ever fast — not eat anything at all for at least 24 hours — in order to avoid gaining weight after binge eating?

1 Yes 2 No

IF YES: How often, **on average**, was that?

1 Less than one day a week
2 One day a week
3 Two or three days a week
4 Four or five days a week
5 Nearly every day

22. During the past **three** months, did you ever exercise for more than an hour **specifically** in order to avoid gaining weight after binge eating?

1 Yes 2 No

IF YES: How often **on average**, was that?

1 Less than once a week
2 Once a week
3 Two or three times a week
4 Four or five times a week
5 More than five times a week

23. During the past **three** months, did you even-take more than twice the recommended dose of a diet pill in order to avoid gaining weight after binge eating?

1 Yes 2 No

IF YES: How often **on average**, was that?

1 Less than once a week
2 Once a week
3 Two or three times a week
4 Four or five times a week
5 More than five times a week

24. During the past **six** months, did you go to any meetings of an organized weight control program? (e.g.Weight Watchers, Optifast, Nutrisystem) or a self-help group (e.g., TOPS, Overeaters Anonymous)?

1 Yes 2 No

IF YES: Name of program_____

25. Since you have been an adult—18 years old—how much of the time have you been on a diet, been trying to follow a diet, or in some way been limiting how much you were eating in order to lose weight or keep from regaining weight you had lost? Would you say...?

1 None or hardly any of the time
2 About a quarter of the time
3 About half of the time
4 About three-quarters of the time
5 Nearly all of the time

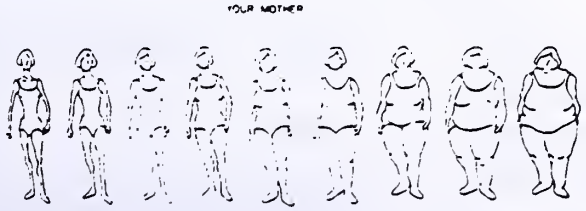
26. SKIP THIS QUESTION IF YOU NEVER LOST AT LEAST 10 LBS BY DIETING: How old were you the first time you lost at least 10 lbs by dieting, or in some way limiting how much you ate? If you are not sure, what is your best guess?

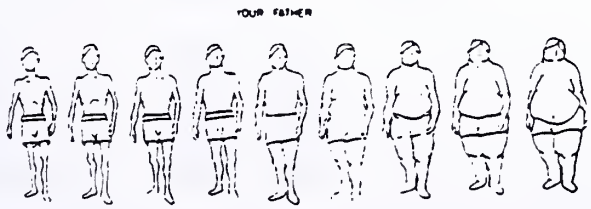
___ ___ years

27. SKIP THIS QUESTION IF YOU'VE NEVER HAD EPISODES OF EATING UNUSUALLY LARGE AMOUNTS OF FOOD ALONG WITH THE SENSE OF LOSS OF CONTROL: How old were you when you first had times when you ate large amounts of food and felt that your eating was out of control? If you are not sure, what is your best guess?

___ ___ years

28. Please take a look at these silhouettes. Put a circle around the silhouettes that most resemble the body build of your natural father and mother **at their heaviest.** If you have no knowledge of your biological father and/or mother, don't circle anything for that parent.





Weight and Eating Disorder History

NAME:_____ Marital Status:_____

Current Wt: _____ Ht: _____ Diagnosis: ☐ BED
☐ BED subthreshold
Lowest Adult (>=18) Wt: _____ Age: _____ ☐ EDNOS
Highest Adult (>=18) Wt: _____ Age: _____ ☐ BN

DIETING: Age of Onset:_____ "At what age do you remember first going on a diet?"
Associated Event:_____
"Whose idea was it to start a diet?" SELF FAMILY PHYSICIAN

BINGEING: Age of Onset:_____ "At what age do you remember first binge eating on a regular basis - at least one time per week?"
Associated Event:_____

Vomiting:	YES	NO	Hx	Frequency:	_____
Laxatives:	YES	NO	Hx	Frequency:	_____
Diuretics:	YES	NO	Hx	Frequency:	_____
Diet Pills:	YES	NO	Hx	Frequency:	_____
Fasting:	YES	NO	Hx	How long:	_____
				How often:	_____
Exercise:	YES	NO	Hx	Types:	_____
				Duration:	_____
				Frequency:	_____

Bingeing: YES NO Description of most recent binge:_____
_____
_____
Frequency: _____ Duration: _____
Out of Control: YES NO

WEIGHT LOSS EXPERIENCE:

Self-help (own idea, magazine, book, friend)	NEVER	ONCE	MORE
Supervised Program (Wt Watchers, Jenny Craig, OA)	NEVER	ONCE	MORE
Prescribed Diet Pills (Amphet, Redux, Fen-phen)	NEVER	ONCE	MORE

PARENTAL HISTORY:

Mother:	Is she overweight?	YES	NO
	Did she repeatedly diet?	YES	NO
Father:	Is he overweight?	YES	NO
	Did he repeatedly diet?	YES	NO

MOTIVATION FOR TREATMENT:
If you could be completely honest with yourself, which would be your number one reason for seeking help at this time? APPEARANCE HEALTH EMOTIONAL WELL-BEING

ID Number: ___ ___ ___ ___ - ___ ___ ___

BDI

Instructions

In this questionnaire are groups of statements. Please read each group of statements carefully. Then pick out the one statement in each group which best describes the way you have been feeling during the PAST WEEK, INCLUDING TODAY. Type the number of the statement you picked. BE SURE TO READ ALL THE STATEMENTS IN EACH GROUP BEFORE MAKING YOUR CHOICE.

STATEMENT	RESPONSE
1. 0) I do not feel sad. 1) I feel sad. 2) I am sad all the time and I can't snap out of it. 3) I am so sad or unhappy that I can't stand it.	☐
2. 0) I am not particularly discouraged about the future. 1) I feel discouraged about the future. 2) I feel I have nothing to look forward to. 3) I feel that the future is hopeless and that things cannot improve.	☐
3. 0) I do not feel like a failure. 1) I feel I have failed more than the average person. 2) As I look back on my life, all I can see is a lot of failures. 3) I feel I am a complete failure as a person.	☐
4. 0) I get as much satisfaction out of things as I used to. 1) I don't enjoy things the way I used to. 2) I don't get real satisfaction out of anything anymore. 3) I am dissatisfied or bored with everything.	☐
5. 0) I don't feel particularly guilty. 1) I feel guilty a good part of the time. 2) I feel quite guilty most of the time. 3) I feel guilty all of the time.	☐
6. 0) I don't feel I am being punished. 1) I feel I may be punished. 2) I expect to be punished. 3) I feel I am being punished.	☐
7. 0) I don't feel disappointed in myself. 1) I am disappointed in myself. 2) I am disgusted with myself. 3) I hate myself.	☐

8. 0) I don't feel I am any worse than anybody else.
   1) I am critical of myself for my weaknesses or mistakes.
   2) I blame myself all the time for my faults.
   3) I blame myself for everything bad that happens.

9. 0) I don't have any thoughts of killing myself.
   1) I have thoughts of killing myself, but I would not carry them out.
   2) I would like to kill myself.
   3) I would kill myself if I had the chance.

10. 0) I don't cry any more than usual.
    1) I cry more now than I used to.
    2) I cry all the time now.
    3) I used to be able to cry, but now I can't cry even though I want to.

11. 0) I am no more irritated now than I ever am.
    1) I get annoyed or irritated more easily than I used to.
    2) I feel irritated all the time now.
    3) I don't get irritated at all by the things that used to irritate me.

12. 0) I have not lost interest in other people.
    1) I am less interested in other people than I used to be.
    2) I have lost most of my interest in other people.
    3) I have lost all of my interest in other people.

13. 0) I make decisions about as well as I ever could.
    1) I put off making decisions more than I used to.
    2) I have greater difficulty in making decisions than before.
    3) I can't make decisions at all anymore.

14. 0) I don't feel I look any worse than I used to.
    1) I am worried that I am looking old or unattractive.
    2) I feel that there are permanent changes in my appearance that make me look unattractive.
    3) I believe that I look ugly.

15. 0) I can work about as well as before.
    1) It takes an extra effort to get started at doing something.
    2) I have to push myself very hard to do anything.
    3) I can't do any work at all.

16. 0) I can sleep as well as usual.
    1) I don't sleep as well as I used to.
    2) I wake up 1-2 hours earlier than usual and find it hard to get back to sleep.
    3) I wake up several hours earlier than I used to and I cannot get back to sleep.

17. 0) I don't get more tired than usual.
1) I get tired more easily than I used to.
2) I get tired from doing almost anything.
3) I am too tired to do anything.

---

18. 0) My appetite is no worse than usual.
1) My appetite is not as good as it used to be.
2) My appetite is much worse now.
3) I have no appetite at all anymore.

---

19. 0) I haven't lost much weight, if any, lately.
1) I have lost more than 5 pounds.
2) I have lost more than 10 pounds.
3) I have lost more than 15 pounds.

I am trying to lose weight. ***(Please circle yes or no)*** **yes no**

---

20. 0) I am no more worried about my health than usual.
1) I am worried about physical problems, such as aches or upset stomach.
2) I am very worried about my health, and it's hard to think of much else.
3) I am so worried about my physical problems that I cannot think about anything else.

---

21. 0) I have not noticed any recent change in my interest in sex.
1) I am less interested in sex than I used to be.
2) I am much less interested in sex now.
3) I have lost interest in sex completely.

ID Number: ___
Quest. #: 31 __
Session Number: __
Date: __ __ __ __

RSES

Instructions

The following statements are about how you are feeling about yourself these days. Please read each statement and decide whether you STRONGLY AGREE, AGREE, DISAGREE, or STRONGLY DISAGREE *with it. Indicate one answer for each item.*

	STRONGLY AGREE	AGREE	DISAGREE	STRONGLY DISAGREE
1. I feel that I'm a person of worth, at least on an equal basis with others.	1	2	3	4
2. I feel that I have a number of good qualities.	1	2	3	4
3. All in all, I'm inclined to feel that I am a failure.	1	2	3	4
4. I am able to do things as well as most other people.	1	2	3	4
5. I feel I do not have much to be proud of.	1	2	3	4
6. I take a positive attitude toward myself.	1	2	3	4
7. On the whole, I am satisfied with myself.	1	2	3	4
8. I wish I could have more respect for myself.	1	2	3	4
9. I certainly feel useless at times.	1	2	3	4
10. At times I think that I am no good at all.	1	2	3	4

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